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## Reviews.

*Plants of Monroe County, New York, and adjacent Territory.*—Many catalogues of American local floras have been published. Among the regions most thoroughly explored is that of central and western New York. The number and character of the students who, first and last, have done field work within its limits would warrant this conclusion without taking into consideration their published results. Gray, Torrey, Vasey, Knieskern, Clinton, Sartwell, Paine, Wright, Day, Dudley and others have published papers, while many others have assisted in collecting information.

The recent publication, by the Rochester Academy of Science, of a catalogue of "Plants of Monroe County, New York, and Adjacent Territory,"\* adds a large amount to our knowledge of the plants of this region. The catalogue is something more than a list, as may be seen by the table of contents.

- Inception of the Work ; Authorship.
- Scope of the List.
- Territory included.
- The Map.
- Authorities and Collectors.
- Early Botanists of the Region.
- Recent Collectors.
- Acknowledgments.
- Localities of Special Interest ; The Lessér Floras.
- Shore of Lake Ontario.
- Irondequoit Bay.
- Genesee River.
- Mendon Ponds.
- Swamp at Adams Basin.
- Bergen Swamp.
- Ravine at Holly.
- Introduction of Species.
- Disappearance of Species.
- Forest Trees.
- Statistics of the Flora.
- Systematic Distribution.
- Leading Orders.
- Leading Genera.
- Comparative Statistics.

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\* Plants of Monroe County, New York, and Adjacent Territory. Published by the Rochester Academy of Science : 150 pages ; large octavo, with two maps. Price, one dollar.

Affinities of the Monroe Flora.	
General Comparison.	
Comparison with the Cayuga Flora.	
Plants common to the Monroe and Cayuga Floras.	
Comparison with the Buffalo Flora.	
Plants common to the Monroe and Buffalo Floras.	
Comparison of Cayuga and Buffalo Floras.	
Plants common to the Cayuga and Buffalo Floras.	
List of Plants peculiar to each of the three Floras.	
Plants peculiar to the Monroe Flora.	
Plants peculiar to the Cayuga Flora.	
Plants peculiar to the Buffalo Flora.	
Physical Characters of the Region, by H. L. Fairchild.	
Geography and Hydrography.	
Topography and Altitudes.	
List of Elevations.	
Geology.	
Stratigraphy.	
Pleistocene Drift.	
Influence upon Plant-life.	
Climatic Conditions.	
Statistics of Climate at Rochester.	
Date of earliest blossoming of Trees.	
The Catalogue.	
Explanation of Plan.	
Authorities.	
Topography and Reference Marks	
List of Phanerogams.	
List of Vascular Acrogens.	
Bibliography	
Corrections and Insertions.	
Index to Orders and Genera.	

The work is made up of two main parts, the introduction and the catalogue proper. The plan of the whole work is similar to Professor Dudley's Cayuga Flora. There is lacking in it the evidence of painstaking research by the authors, so evident in every page of Professor Dudley's book. "The committee have collated all the lists of plants of this vicinity which they have been able to obtain, have examined the specimens in the herbarium of the Academy, and have used all available sources of information."

The list includes phanerogams and vascular acrogens. The unstable condition of botanical nomenclature apparently subjected the committee to some embarrassment. They used the old nomenclature in order to make the work "immediately useful to the

schools of western New York," Gray's Manual being the standard text-book. By including the names of the new system in brackets wherever they differ from the old, it is hoped to make the publication up to date in botanical science, and at the same time available to the students in the high schools.

The tables in the introduction are interesting and suggestive. The number of species of flowering plants in the region is 1314, and consequently exceeds the number included in Professor Dudley's Catalogue as well as Mr. Day's "Plants of Buffalo." Some feeling is shown over the fact that Mr. Day reached far enough east to include the plants of Bergen Swamp. In the tables of comparison the Bergen plants are eliminated from the Buffalo list. An outsider might think this unjustifiable manipulation of the returns. It should be remembered, however, that Rochester and Buffalo are rival cities, and are not always on the most neighborly terms. The situation would be less amusing had not Rochester done very nearly the same thing herself for which she rebukes Buffalo. In including the plants of Wayne County and the region about Canandaigua Lake, about thirty-six plants were added to the list which have not been seen in Monroe County nor in the valley of the Genesee River.

However inconsistent it may be for Rochester to expunge from the Buffalo list its eastern extension, and at the same time to include an eastern extension of its own, every botanist will rejoice that the observations of Mr. Hankenson in Wayne County have been recorded. Monroe County is not a natural district, and the main issue is to include all the facts regarding the distribution of plants in that general region.

The committee gives its authority for each rare plant and thereby relieves itself, in part at least, of the responsibility for errors. It includes the lists of isolated amateur collectors without seeing their specimens or rediscovering their stations. Twelve or thirteen rare plants are included in the catalogue on the authority of the list of Rev. Lawrence Holzer, who collected about Rochester between 1862 and 1865. One plant, *Carex squarrosa*, the committee declines to give a number. Those included are *Nicotiana rustica* L., *Thymus Serpyllum* L., *Alnus serrulata* Willd., *Quercus ilicifolia* Wang., *Salix fragilis* L., *Allium vineale* L., *Trillium sessile*

L., *Carex monile* Tuckerm., *Muhlenbergia sobolifera* Trin., *Glyceria pallida* Trin., *Bromus racemosus* L., *Abies balsamea* Mill. Among these the species which arouses the greatest suspicion about Holzer's observations is the *Quercus*. Sargent avers (*Silva of North America*, 8: 156) that *Q. ilicifolia* "apparently does not reach central New York, nor cross the Alleghany mountains into the Mississippi basin." Other plants in Holzer's list belong to groups such that one who did not have access to verified specimens, might easily go astray in. In making up the lists peculiar to each of the three floras—Monroe Co., Buffalo and Cayuga—the committee spared no pains to swell the Monroe Co. list. A considerable percentage of them are plants of recent introduction, some of them are given no number in the list. But it would be unfair, perhaps uncharitable, to dwell upon the parts of the work in which the committee has emphasized the richness of their flora.

The historical sketches are welcome contributions to our too meager knowledge of local botanists. The maps are excellent; the sketches of localities are full of interesting matter. The remarks upon forest trees, which always form such a conspicuous feature in a flora, make one wish that more information had been collected and included. It is certain that Mr. Fuller could have put upon record much that those local botanists who succeed him would be glad to possess.

W. W. ROWLEE.

*The Roentgen Rays and Botany.*—It is reasonable to suppose that botanists, among other scientists, should devote some attention to the influence of Roentgen rays upon vegetable life. So far only minor reports have been published owing to the fact that sufficient time has not yet elapsed for the attainment of reliable results.

Schober\* has published the preliminary results of his observations on the influence of the Roentgen rays upon the heliotropic curvatures of plants. He experimented upon the seedlings of *Avena sativa*. The seed was allowed to germinate in a dark chamber after which it was exposed (without being removed from the dark chamber) to the Roentgen rays for a period of one-half

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\* Schober, Alfred. Ein Versuch mit Röntgen'schen Strahlen auf Keimpflanzen. Ber. deutsch. bot. Ges. 14: 108–110. 1896.

hour. Upon examination it was found that the new rays had not induced any curvatures. A further exposure of one-half hour induced no curvatures. Afterwards the seedlings were exposed to one-sided diffuse sunlight, to determine whether any after effects would be manifest. It was found that the heliotropic curvatures took place promptly and proceeded normally. From these experiments the author concludes that the new rays differ from sun rays in that they do not cause growth curvatures. No observations were made as to whether the seedlings absorbed the Roentgen rays.

Recently Hintenberger\* has published some interesting results in regard to the preparation of Roentgenograms of vegetable tissue. From some previous experiments made by K. Zahlbruckner and W. König it became apparent that certain tissues are very clearly outlined, especially the interior of the ovary. The author, with the assistance of Dr. A. Zahlbruckner, made a series of experiments testing the transmissibility of different flowers, buds and fruits to the Roentgen rays. From the Roentgenograms obtained it was found that not all ovaries gave the same clearness of outline. Seeds having a comparatively low percentage of water and a large number of air chambers and passages gave the best results, as for example beans and peas. Fleshy fruits transmit the new rays with difficulty. The interrupted water columns in the vessels of the stem of a species of *Nuphar* were outlined.

Further Roentgenographic experiments with dried herbarium specimens, of seedlings, woody tissues, etc., are in progress. The author ventures the suggestion that vegetable tissue may perhaps be made more readily transmissible to the new rays by impregnation with various solutions, such as solutions of lead salts, etc. It is also his opinion that the sensitive plates can be made to respond more effectually to the influence of the Roentgen rays.

A. S.

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\*Hintenberger, Hugo von, "Röntgenogramme" von Planzentheile. Separatabdruck aus der Photographischen Correspondenz. 1896.